IS YOUR LUNCH CAUSING GLOBAL WARMING?

CARS AND FACTORIES ARE MAJOR SOURCES OF GREENHOUSE GAS EMISSIONS THAT ARE HEATING UP THE PLANET. BUT WHAT YOU EAT MAY HAVE EVEN MORE OF AN IMPACT.

By Elisabeth Rosenthal

As you go through the cafeteria line and grab a roast beef sandwich and a bag of chips or a salad and a couple of cookies, maybe you're thinking about how much money or how many calories lunch will cost you.

But here's something you're probably not thinking about: Is your lunch a cause of climate change?

When people think about what's behind global warming, the images that tend to spring to mind are factory smokestacks and cars spewing tailpipe exhaust. And cars and power generation, whether for factories or to heat and cool our homes, are indeed major causes. But what we eat—and the energy required to grow, harvest, process, and transport all that food—may have an even bigger impact.

"It's an area that's been largely overlooked," says Rajendra Pachauri, head of the United Nations Intergovernmental Panel on Climate Change.

An estimated 25 percent of the greenhouse gas emissions produced by people in industrialized nations can be traced to the food they eat, according to a recent study in Sweden.

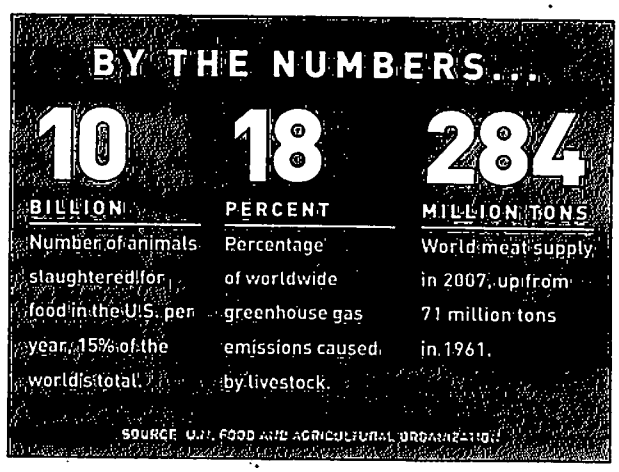
Most scientists today think that global warming—the rise in Earth's temperature due to a buildup of heat-trapping greenhouse gases—is having a significant, and possibly disastrous, impact. There is already evidence of glaciers and arctic ice sheets melting, which could eventually cause ocean levels to rise so much that coastal areas around the world would be flooded.

BEEF VS. CARROTS

Since foods vary enormously in the emissions released in their production and transportation, experts say that changing our diets (which would prompt changes in the entire food-production chain) could have as much impact on reducing emissions of climate-changing gases as switching to a hybrid car or getting rid of the clothes dryer.

Meat is perhaps the worst culprit. Producing a pound of beef generates 11 times as much greenhouse gas as producing a pound of chicken, and 100 times as much as producing a pound of carrots *(see graph, p. 8)*.

The United Nations estimates that livestock—the trillions of



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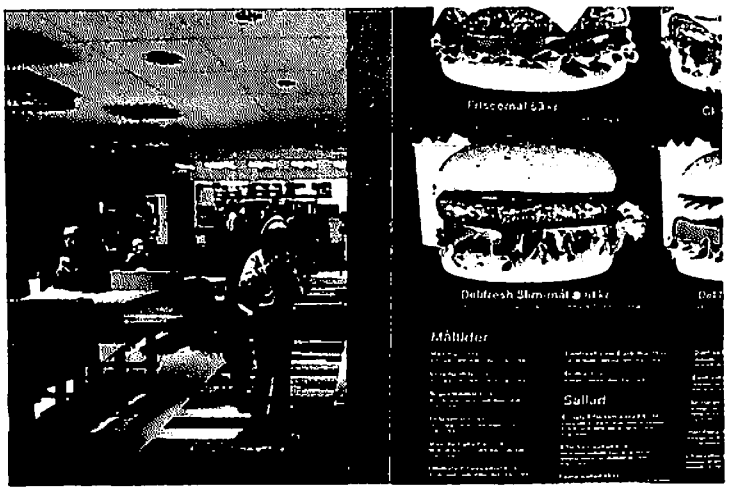
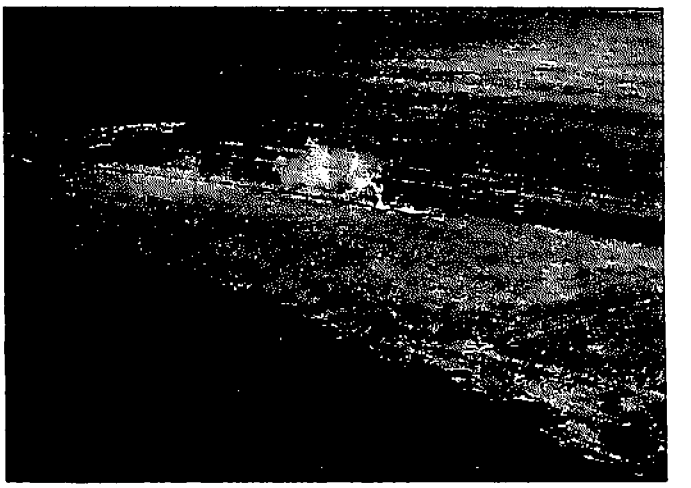


IN SWEDEN, a fast-food menu shows each item's carbon footprint, as well as its price. Sales of "climate-friendly" items have risen.



IN BRAZIL, a soybean field on the edge of the Amazon; soybean dem for use as livestock feed has accelerated clear-cutting of the rain fo

cows, pigs, and chickens raised for food—generate 18 percent of the emissions that are causing climate change. That's more, the U.N. says, than the emissions from cars, buses, and planes put together.

Consider the environmental impact of eating a burger. Today, there's a good chance your burger comes from meat produced in an industrial feedlot like the one in Garden City, Kansas, where 37,000 cows are packed into an enormous grid of steel-fenced pens. Each pen holds 150 cows.

These feedlot operations are so efficient that they've lowered the cost of beef to the point that it's no longer a luxury item, but an inexpensive fast-food staple around the globe.

LIVING SMOKESTACKS

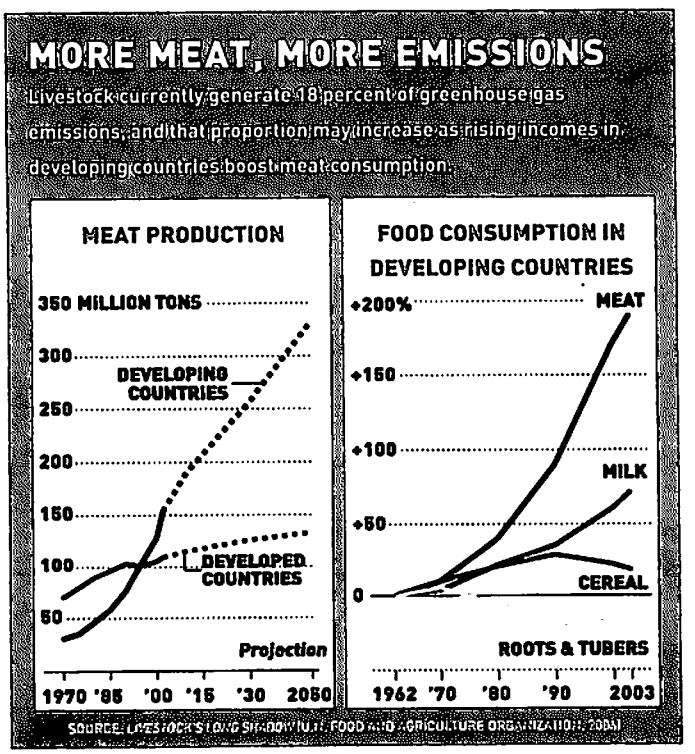
But scientists say the environmental consequences of the industrial production of meat are enormous.

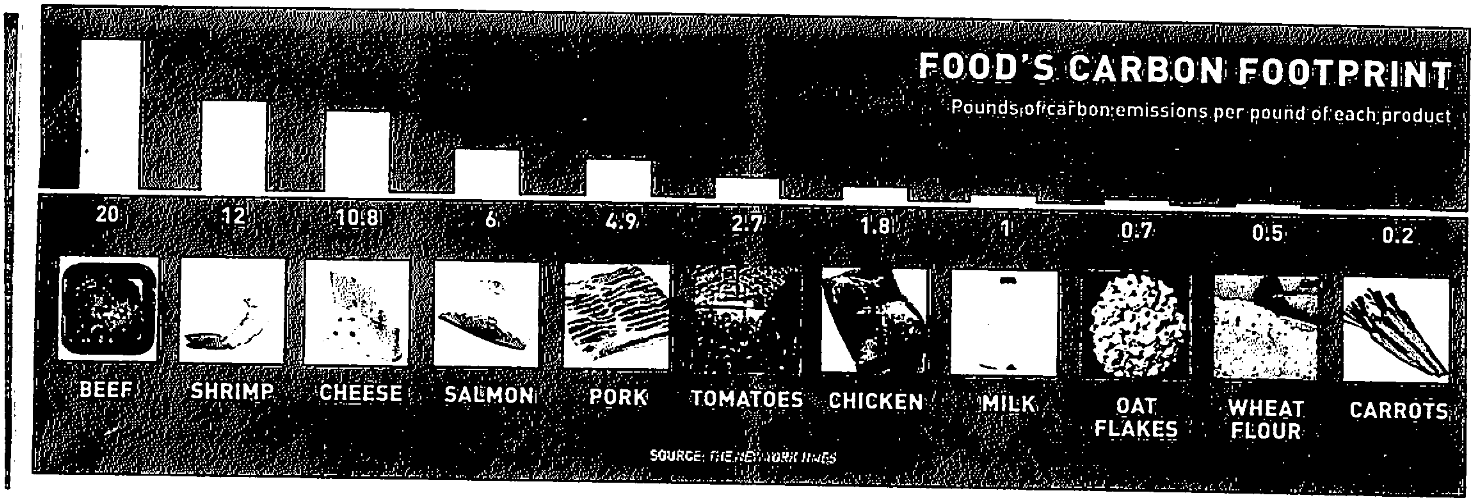
First, the animals themselves are living smokestacks. As part of their digestive process, cows emit methane, a powerful greenhouse gas. And then there's the manure, which contains methane and nitrous oxide (another greenhouse gas). A single beef cow creates about 15 tons of manure in a year. In Iowa alone, hog farms produce more than 50 million tons of manure a year.

One of the most important effects on the environment is indirect, and therefore less obvious: Industrial meat production is a key factor behind deforestation of the Amazon and other tropical rain forests. They're being cleared to create fields to grow the feed needed for all those cows, especially corn and soy, which the cows eat instead of the grass they'd munch on if they were grazing in fields as they used to do.

In fact, most of the corn and soy grown today goes to feed cattle, pigs, and chickens, not people. And all that grain requires vast quantities of chemical fertilizer, which in turn takes vast quantities of oil—1.2 gallons to create the fertilizer for every bushel. Finally, cutting down rain forests, which are full of carbon-absorbing trees, further exacerbates climate change by reducing the planet's ability to soak up carbon.

So what can we do to reduce the carbon footprint of our diets? The simplest answer is to eat less meat. Geophysicists Gideon Eshel and Pamela A. Martin calculated that if Americans reduced their meat consumption by 20 percent, it





would save as much energy as every American switching from a standard sedan—like a Camry—to an ultra-efficient Prius. (Nutritionists say we'd be better off eating less meat anyway. The protein in meat is also available in fish, beans, and eggs.)

So far, the response to global warming has focused mostly on cleaning up polluting industries, boosting car mileage, and using more renewable energy sources like wind and solar power. To curb global warming, Congress is debating a system known as cap-and-trade: The government would set a cap on the total amount of emissions permitted and give factories and other large-scale pollution sources emission allowances. Those using less than their allotment could sell the remainder to other businesses that need more.

COUNTING CARBON

The Kyoto Protocol, an international treaty addressing global warming, which the U.S. never ratified, expires in 2012. (It was named for the Japanese city where it was negotiated.) World leaders have been trying to negotiate a new framework for tackling climate change (a global summit on climate change took place in Copenhagen, Denmark, last month), but it's been slow going—in part because industrialized countries like the U.S. and developing countries like India can't agree on who should shoulder most of the costs.

In all these international discussions, the impact of food has been largely overlooked. But a few countries have begun to take steps to reduce emissions from the food supply. There's even been some talk of including agricultural emissions in cap-and-trade programs, which usually focus on industries like carmaking and power generation. (New Zealand plans to include agriculture in its emissions trading system by 2013.)

And in Europe a number of countries are trying some new approaches to reduce the environmental impact of their food.

Last year, Sweden became the first country to start posting information on the carbon footprint of various foods on supermarket shelves and restaurant menus. Officials are hoping that once consumers know the environmental costs of their food, they will begin to make greener choices.

Max, a Swedish fast-food chain, now puts emissions counts next to each item on its menus. Since they started appearing, sales of more "climate-friendly" items have risen 20 percent. (Max's hamburger generates more than four times the emissions of the chicken sandwich.)

In the Netherlands, farmers are experimenting with cooking pig manure to capture the methane gas trapped within it, and then using the gas to make electricity for the local power grid. (California is working on a program to encourage the use of similar systems in the state's pig and dairy farms.)

In Denmark, farmers are now required to inject manure under the soil instead of laying it on top of the fields—a process that enhances its fertilizing effect, reduces odors, and also prevents emissions from escaping.

It looks like Earth will need all these efforts and more, since experts say it's unlikely that meat consumption will fall in the years ahead. In fact, trend lines are heading in the other direction *(see chart)*: Meat consumption is expected to double globally between 2000 and 2050. In large developing countries like China, India, and Brazil, consumption of red meat has risen 33 percent in the last decade, as millions of people have moved out of poverty and can afford to eat better.

"So whether you like it or not, there's going to be rising demand for meat," says Laurence Wrixon, executive director of the International Meat Secretariat, "and our job is to make it as sustainable as possible." ●